

Instruction manual



DATA I/O
Programming systems for tomorrow...today

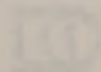
PROM PROGRAMMER
Universal Calibrator 910-1071

PROM PROGRAMMER
Universal Calibrator
910-1071

Rev G Dec 77

026-1071

CAL LAB



DATA CORP.

PROM PROGRAMMER

Universal Calibrator 910-1071

The Universal Calibrator 910-1071 is a performance oriented PROM programmer designed to meet the needs of a wide range of applications. It is a compact, rugged, and reliable unit that can be used in a variety of environments. The unit is designed to be used in a variety of environments, including industrial, laboratory, and field use. It is a compact, rugged, and reliable unit that can be used in a variety of environments.

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IMPORTANT DOCUMENTATION AND SUPPORT

To make performance records of Data I/O Program Card 910-1071 and will require following procedures and items. Data I/O Program Card 910-1071 is provided with a separate calibration and support information in the following manner.

MODEL 910-1071-001

Calibration and test procedures, figures, and Program Card 910-1071-001. The Universal Calibrator 910-1071 is a performance oriented PROM programmer designed to meet the needs of a wide range of applications. It is a compact, rugged, and reliable unit that can be used in a variety of environments. The unit is designed to be used in a variety of environments, including industrial, laboratory, and field use. It is a compact, rugged, and reliable unit that can be used in a variety of environments.

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MODEL 910-1071-002

Calibration and test procedures, figures, and Program Card 910-1071-002. The Universal Calibrator 910-1071 is a performance oriented PROM programmer designed to meet the needs of a wide range of applications. It is a compact, rugged, and reliable unit that can be used in a variety of environments. The unit is designed to be used in a variety of environments, including industrial, laboratory, and field use. It is a compact, rugged, and reliable unit that can be used in a variety of environments.

Calibration and test procedures, figures, and Program Card 910-1071-003. The Universal Calibrator 910-1071 is a performance oriented PROM programmer designed to meet the needs of a wide range of applications. It is a compact, rugged, and reliable unit that can be used in a variety of environments. The unit is designed to be used in a variety of environments, including industrial, laboratory, and field use. It is a compact, rugged, and reliable unit that can be used in a variety of environments.

1. Universal Calibrator 910-1071, Data I/O Program Card 910-1071-001.

2. Universal Calibrator 910-1071, Data I/O Program Card 910-1071-002.

3. Digital Voltmeter, Fluke Model 8000A or equivalent.

4. Additional Tools: A screwdriver, a wire cutters.

5. Data I/O Program Card 910-1071-003.

6. Universal Calibrator 910-1071, Data I/O Program Card 910-1071-004.

7. Universal Calibrator 910-1071, Data I/O Program Card 910-1071-005.

8. Universal Calibrator 910-1071, Data I/O Program Card 910-1071-006.

Calibration and test procedures, figures, and Program Card 910-1071-007.

TECHNICAL DESCRIPTION

1.00. Overview

The Universal Calibrator 910-1071 is a performance oriented PROM programmer designed to meet the needs of a wide range of applications. It is a compact, rugged, and reliable unit that can be used in a variety of environments. The unit is designed to be used in a variety of environments, including industrial, laboratory, and field use. It is a compact, rugged, and reliable unit that can be used in a variety of environments.

2.00. Universal Calibrator 910-1071

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1297 N.W. Mall
Issaquah, Washington 98027
Phone: (206) 455-3990/ Telex 320290

DATA I/O

UNIVERSAL CALIBRATOR 910-1071

INTRODUCTION

The Universal Calibrator 910-1071 is designed to provide a performance check of Data I/O Program Card Sets in conjunction with a Data I/O PROM Programmer. The performance check includes calibration adjustments of program waveform amplitudes and includes go/no-go tests of all critical programming parameters. Also included in the performance check are tests on resistively loaded ac waveforms.

Since PROM manufacturers' shipments can vary from lot to lot, slight variations in PROM programming yields are to be expected. However, each manufacturer usually specifies certain minimum PROM programming yields—provided that specific approved programming techniques are employed. Data I/O Programmers use manufacturer-approved programming techniques; therefore, if programming yields drop below PROM manufacturers' recommended minimums, or if the program card set has been in use for more than ninety days since its last calibration, programmer performance should be checked.

NECESSARY DOCUMENTATION AND EQUIPMENT

To make performance checks of Data I/O Program Card Sets you will require calibration procedures and charts. Each Program Card Set is provided with a separate calibration and test procedure in its instruction manual.

MODEL 9 USERS NOTE:

Calibration and test procedures supplied with Program Card Sets shipped prior to December 5, 1977 allow calibration with Model 1-5 only. To calibrate using a Model 9, you must have a Program Card Set Manual dated Dec 77 or later, or have an undated calibration procedure and chart with "P9 Update" shown in the revision block of the calibration chart. Updated procedures and charts are available free of charge from the Data I/O factory.

Each Program Card set is also provided with a calibration adapter which plugs into the Universal Calibrator.

MODEL 9 USERS NOTE:

Calibration of the following MOS card sets requires a calibration adapter of revision E or later:

909-1177-1 (NAT 4204/5204)
909-1178-1 (NAT 4203/5203/2)
909-1230-1 (AMI 6834/5204A)
909-1183-1 (1702A)

Revision D or earlier adapters used to calibrate these MOS card sets require modification in order to be used with the Model 9. You'll find the revision letter following the part number (eg. 702-1073X) on the adapter. For further information regarding these card sets, contact your nearest service center.

The following equipment is required for PCS performance check and calibration procedures:

1. Data I/O Universal Calibrator, P/N 910-1071.
2. A. Programmers 1, 2, 3, 5: Data I/O Extender Fixture P/N 910-1136.
B. Programmer 9: Data I/O Extender Fixture, P/N 910-1074.
3. Digital Voltmeter: Fluke Model 8000A or equivalent.
4. Adjustment Tool: A three inch screwdriver.
5. Dual Trace Oscilloscope: Tektronix 465 or equivalent.
6. Programmers 1, 2, 3, 5 only: Data I/O 13 inch Interconnect Cable, P/N 709-1613.
7. Programmer 9 only: Data I/O Interconnect Cables, P/N 709-1613 and 709-2608
8. Jumper wires approximately 12 inches in length

Installation and calibration procedures are given in each program card set manual.

TECHNICAL DESCRIPTION

Introduction

As shown in Figure 1., the Universal Calibrator interfaces between the Programmer Main Electronics and the Analog Card of the Program Card Set. Essentially, the Universal Calibrator replaces the control functions which are normally performed by the Digital Card during PROM programming. During calibration, the Universal Calibrator provides static control to the Analog Card, allowing up to 24 Analog Card PROM outputs to be individually inspected under DC steady-state conditions.

Calibration Program Adapter

The Calibrator Program Adapter contains a program in ROM which is used to control the Analog Card being checked or calibrated. Addresses arriving from the Programmer are converted into control instructions in the Adapter. These instructions, in turn, are fed through Buffers U1-U4 and enter the Analog Card at J1.

INTRODUCTION

The Universal Calculator (11506) is a new, unique, and portable device for the business and professional man. It is a true "pocket calculator" in that it is small, light, and easy to carry. It is also a true "pocket calculator" in that it is a complete, self-contained unit, capable of performing all the basic arithmetic operations, as well as more advanced functions, such as percentages, squares, and cube roots.

Now, this new, unique, and portable device is available to you for only \$19.95. This is a truly remarkable value, considering the quality and versatility of the device. It is a true "pocket calculator" in that it is small, light, and easy to carry. It is also a true "pocket calculator" in that it is a complete, self-contained unit, capable of performing all the basic arithmetic operations, as well as more advanced functions, such as percentages, squares, and cube roots.

NECESSARY KNOWLEDGE AND EQUIPMENT

To use the Universal Calculator (11506) effectively, you must have a basic knowledge of arithmetic. You must also have a pen or pencil and a small piece of paper for taking notes.

GENERAL INSTRUCTIONS

Before using the Universal Calculator (11506), please read the following instructions carefully. These instructions will help you to understand the basic operation of the device and to avoid any possible errors. The Universal Calculator (11506) is a true "pocket calculator" in that it is small, light, and easy to carry. It is also a true "pocket calculator" in that it is a complete, self-contained unit, capable of performing all the basic arithmetic operations, as well as more advanced functions, such as percentages, squares, and cube roots.

When using the Universal Calculator (11506), please follow the following instructions: 1. Turn the power switch on. 2. Enter the numbers to be calculated. 3. Press the appropriate function key.

FUNCTION KEYS

The Universal Calculator (11506) has a total of 12 function keys. These keys are used to perform the basic arithmetic operations, as well as more advanced functions, such as percentages, squares, and cube roots. The function keys are: 1. Addition (+) 2. Subtraction (-) 3. Multiplication (x) 4. Division (÷) 5. Percentage (%) 6. Square (x²) 7. Square Root (x^{1/2}) 8. Cube (x³) 9. Cube Root (x^{1/3}) 10. Memory Recall (M+) 11. Memory Store (M-) 12. Memory Clear (MC).

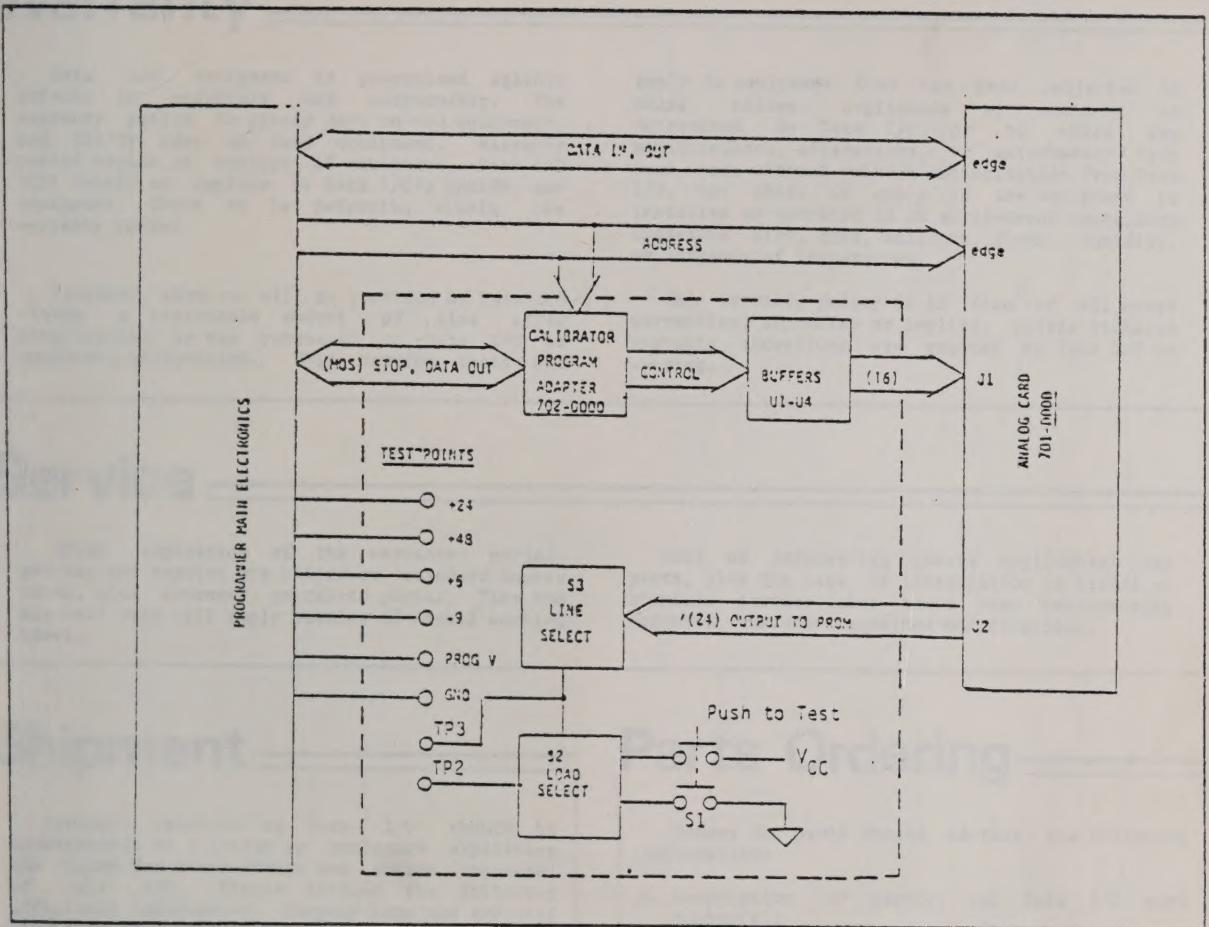


Figure 1. Block Diagram of Universal Calibrator.

Analog Card Output

Output from Analog Card J2 is routed through Line Select switch S3 and to Load Select Switch S2. S3 selects one of the 24 Analog Card PROM outputs. S2 is used to select various resistive loads. S1 is 'push to test' and used to connect the high current load resistors in S2 to ground or VCC when taking DVM readings.

DATA I/O FIELD SERVICES

Data I/O Corp. furnishes complete programmer repair and calibration services at regional Field Service Centers and at the Data I/O factory. Contact your local Data I/O representative for further information.

Warranty

Data I/O equipment is guaranteed against defects in materials and workmanship. The warranty period is ninety days on new equipment, and thirty days on used equipment. Warranty period begins on receipt of equipment. Data I/O will repair or replace, at Data I/O's option, any equipment found to be defective within the warranty period.

Warranty service will be provided by Data I/O within a reasonable amount of time after notification by the purchaser to Data I/O of equipment malfunction. This service shall not

apply to equipment that has been subjected to abuse, misuse, negligence or accident as determined by Data I/O, or to which any modifications, alterations, or attachments have been made without written authorization from Data I/O, nor shall it apply if the equipment is installed or operated in an environment containing excessive dirt, dust, moisture, fumes, humidity, or extremes of temperature.

This warranty policy is in lieu of all other warranties, expressed or implied, unless standard warranty exceptions are granted by Data I/O in writing.

Service

After expiration of the warranty period, service and repairs are billed at standard hourly rates, plus expenses, portal-to-portal. Time and one-half rate will apply outside of normal working hours.

Cost of engineering (where applicable) and parts, plus the cost of installation is billed at standard service labor rates when implementing approved, customer requested modifications.

Shipment

Products returned to Data I/O should be accompanied by a letter or enclosure explaining the reason for their return and action requested of Data I/O. Please include the following additional information: Company name and address; attention of; method of shipment desired; serial number; date of purchase; billing information, and purchase order number.

All products returned to Data I/O must be sent prepaid F.O.B. The warranty is voided if returned items are not packaged by the customer in original packing material, or in other Data I/O approved containers. If reshipment method is not specified by customer, Data I/O will return products by most expedient shipping method, F.O.B. our plant.

Ship returned equipment to:

DATA I/O CORPORATION
1297 N.W. Mall
Issaquah, Washington 98027

From Europe:

DATA I/O EUROPE
Vondelstraat 50-52
Amsterdam, Netherlands

Parts Ordering

Orders for parts should contain the following information:

- Description of part(s) and Data I/O part number(s).
- Quantity of each item to be ordered.
- Equipment serial number and model number.
- Corporate name of firm.
- Shipping address of firm, including zip code.
- Full name of person ordering the part(s).
- To whose attention the part(s) are to be shipped.
- Billing information.
- Purchase order number.
- Method of shipment.

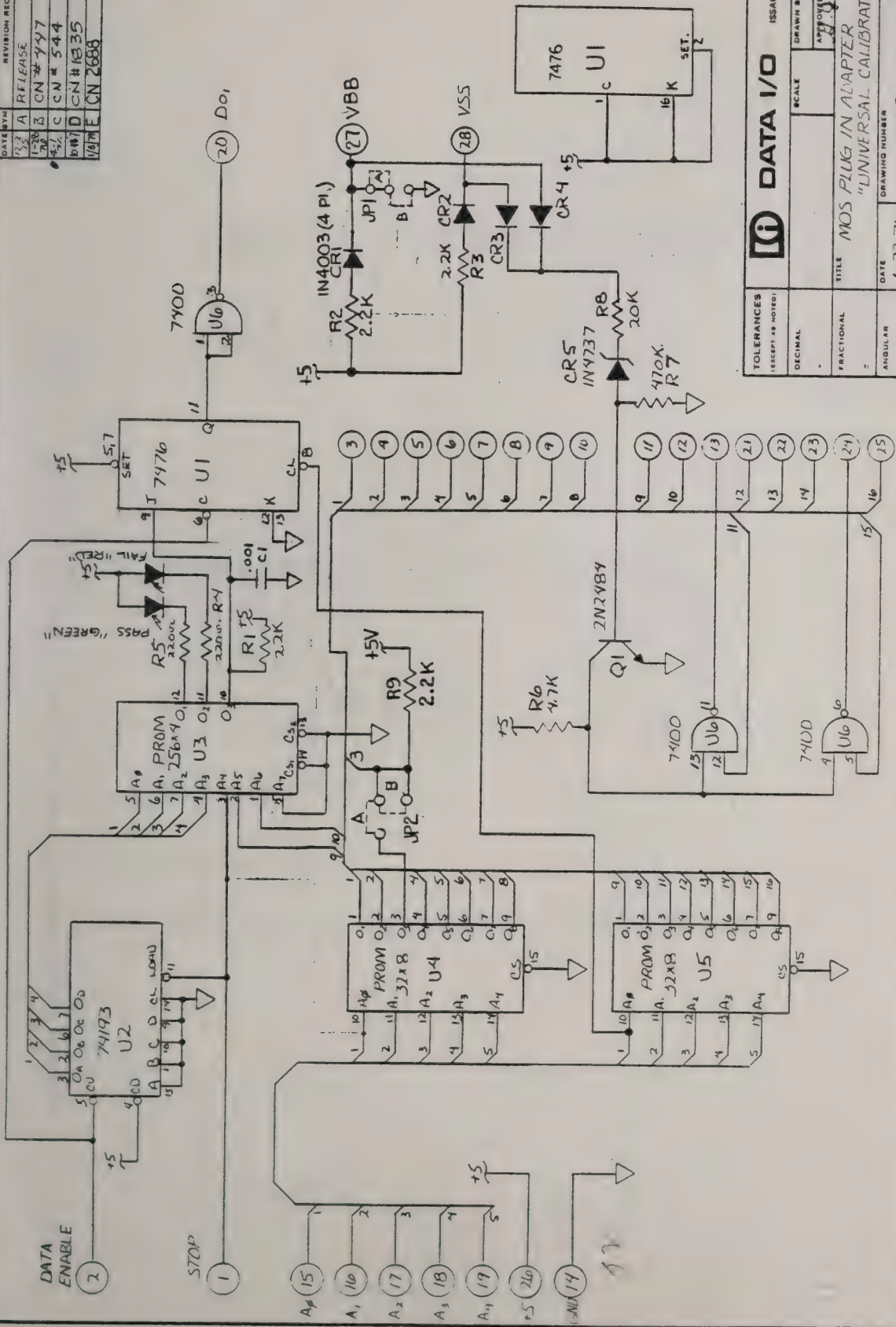
Please send all parts orders to:

DATA I/O CORPORATION
P O Box 308
Issaquah, Washington 98027

From Europe:

DATA I/O EUROPE
Vondelstraat 50-52
Amsterdam, Netherlands

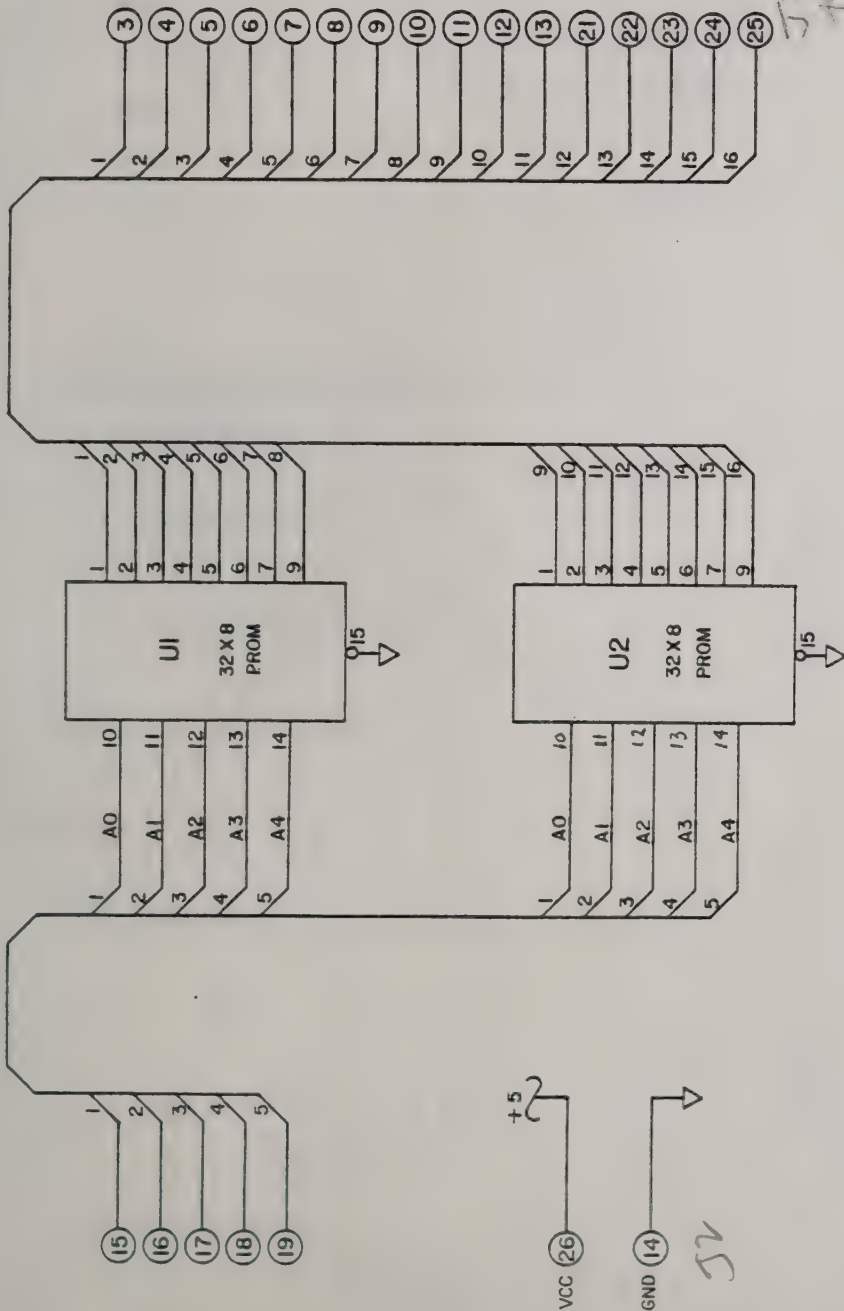
DATE	BY	REVISION	RECORD	DR	CR
1-28-83	A	RELEASE		KJ	
2-1-83	B	CN # 447		KJ	
2-1-83	C	CN # 544		KJ	
2-1-83	D	CN # 1335		KJ	
2-1-83	E	CN 2688		KJ	



TOLERANCES (EXCEPT AS NOTED)		DATA I/O		ISSAQUAH, WASH.	
DECIMAL		SCALE		DRAWN BY	K. JONES
FRACTIONAL				APPROVED BY	
ANGULAR					
DATE		TITLE		DRAWING NUMBER	
1-22-76		MOS PLUG-IN ADAPTER "UNIVERSAL CALIBRATOR"		008-1073	

32
10-20-83
10-20-83

DATE	BY	REVISION	RECORD	DR	CR
11-18-75	A	RELEASE			



TOLERANCES	EXCEPT AS NOTED
DECIMAL	F
FRACTIONAL	F
ANGULAR	F

SCALE	DRAWN BY	ISSAQUAH, WASH.
	G. ROPPE	
TITLE	APPROVED	DATE
PLUG IN ADAPTER (UNIVERSAL CALIBRATOR)	10-15-75	008-1072

DATA I/O

Programming systems for tomorrow...today

Reader Comments

The manual's completeness, accuracy, organization, usability, and reliability: _____

Did you find errors in this manual: _____

How can this manual be improved: _____

Additional comments: _____

Name _____

Company _____ Department _____ M/S _____

Address _____

City _____ State _____ Zip _____ Phone _____

Manual or Part No. _____

Warranty/Registration

Please return this card to Data I/O within five days

Did the packaging of this equipment exhibit any outward signs of physical damage? YES ☐ NO ☐

Did this equipment arrive intact, without loose parts or cable damage? YES ☐ NO ☐

Did the equipment operate on power-up? YES ☐ NO ☐

Did you attain adequate system performance? YES ☐ NO ☐

Were any electrical adjustments required? YES ☐ NO ☐

If you required assistance, was a local Data I/O representative contacted? YES ☐ NO ☐

Comments - _____

Name _____ Title _____

Department _____ M/S _____

Company _____

Address _____

City _____ State _____ Zip _____ Phone () _____

Model or Description _____ Serial or Part No. _____

Date Received _____

Warranty

(a) **Consequential Damages** — Data I/O shall not be liable for any incidental or consequential damages incurred as a result of any defect in any equipment sold hereunder and Data I/O's liability is specifically limited to its obligation described herein to repair or replace a defective part or parts covered by this warranty.

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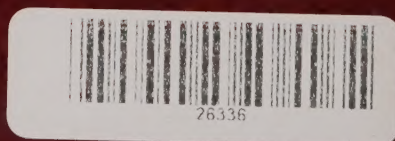
Director of Sales Support
P. O. Box 308
1297 Northwest Mall
Issaquah, WA 98027



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